WHAT IS CLAIMED IS:

1. A method for manufacturing a semiconductor device comprising the steps of:

forming a first conductive region on a main surface of a semiconductor substrate;

forming an insulating film above said semiconductor substrate to cover said first conductive region;

forming a first recess in said insulating film;

filling said first recess with a filling material;

applying a photoresist to said insulating film;

by performing exposure and development to said photoresist, forming a resist pattern such that said filling material is revealed;

by etching said insulating film with said resist pattern as a mask to form a second recess, forming a recess portion defined by said first recess and said second recess revealing a surface of said first conductive region;

removing said filling material with a prescribed conductive material and said resist pattern; and

by filling up said recess portion, forming a second conductive region electrically connected to said first conductive region,

said method including the step of performing a wet treatment to said first recess by a resist solvent containing an acid component after forming the first recess in said insulating film and before filling said first recess with the filling material.

2. The method according to claim 1, wherein said step of forming the first recess includes forming a hole as the first recess, and

said step of forming the second recess includes forming an interconnect trench as the second recess.

3. The method according to claim 2, further comprising, before said step of forming the insulating film, the step of forming another insulating film having a different etching property from said insulating film above the

main surface of said semiconductor substrate,

said step of forming the first recess including the step of revealing a surface of said another insulating film at a bottom of said first recess, and

said step of forming the second recess including the step of removing said revealed another insulating film.

4. The method according to claim 2, wherein said step of forming the insulating film includes the steps of

forming a first layer having a prescribed etching property, and

forming over said first layer a second layer having a different etching property from said first layer,

said interconnect trench being formed in said second layer.

5. The method according to claim 1, wherein said step of forming the first recess includes forming an interconnect trench as the first recess, and

said step of forming the second recess includes forming a hole as the trench.

6. The method according to claim 5, wherein said step of forming the insulating film includes the steps of

forming a first layer having a prescribed etching property, and

forming over said first layer a second layer having a different etching property from said first layer,

said interconnect trench being formed in said second layer.

7. The method according to claim 1, wherein said insulating film includes an amorphous silicon-based insulating film, and said photoresist includes a chemical-amplification photoresist .